

Collaborative Engineering

IVC video systems are enabling collaborative engineering and problem solving in a variety of ways at General Motors. The applications include reviewing the pre-production slow-build assembly process for new transmission designs, reviewing the teardown or disassembly of warranty returned engines, and using recorded video for training. Viewing these activities at multiple international locations is facilitated by IVC's IP-based, scalable architecture.



The objective is to allow individuals at different locations to work jointly on issues both with live video as well as through the review of annotated recorded video. While the traditional requirement for teleconferencing is to have high quality synchronized audio and video in a presentation room setting, in collaborative engineering applications, the primary needs are to allow the viewer to remotely control the camera, achieve high quality close-up views, and to

easily save annotated snapshots and video clips for later review.

IVC has provided several different camera configurations GM, all utilizing a variety of specialty cameras with IVC software and servers. The configurations vary depending on the location and its specific requirements. Configurations include portable tripod cameras and permanent fixed and pan-tilt units. All are connected to the company's wired area network and are accessible by authorized viewers at any company location worldwide.

GM management has found several features in the IVC systems key to their activities including: (1) high powered optical zoom, (2) high resolution images provided by automatic, motor driven optics (3) dynamic management of bandwidth consumption allowing local viewers to view at a high frame rate, while overseas viewers are limited to a lower frame rate, (4) annotated snapshots for e-mail, print and archive, (5) convenient storage of video segments for viewing and archive, (5)ability to review the video remotely in high speed, slow motion and frame-by-frame stop action, and (6) convenient access to the entire capability from any PC with no special software or downloads.

“When assembly related problems are encountered, immediate snapshots can be created and e-mailed to engineers or suppliers for faster problem resolution. Conferences are held with other company locations and are often used for part review decisions. The teardown or disassembly of warranty returned engines online, allows engineers from the original production site to view parts that caused the warranty problem. The engineers can then focus on corrective action much faster.”

IVC is developing additional capabilities to meet GM's needs including: saving video in an .avi format for easy distribution, editing, and offline review.